LISTING OF THE CLAIMS

The following is a complete listing of the claims with a status identifier in parenthesis.

LISTING OF CLAIMS

1. (Previously Presented) A method for visually supporting an electrophysiology catheter application in the heart, comprising:

visualizing electroanatomical 3D mapping data, provided during the performance of the catheter application, of an area of the heart to be treated;

recording 3D image data of a body region containing the area to be treated with a method of tomographical 3D imaging before the catheter application is carried out, the 3D image data of the body region being high resolution image data;

extracting at least significant portions of the area to be treated by segmenting the 3D image data to obtain a 3D surface profile of objects in the area which is to be treated, in order to obtain selected 3D image data; and

automatically correlating and visualizing the electroanatomical 3D mapping data and the selected 3D image data next to one another in the correct position and dimension using surface matching by at least approximately matching the 3D surface profile from the 3D image data to a 3D surface profile from the 3D mapping data.

2. (Previously Presented) The method as claimed in claim 1, wherein the 3D image data of the body region are recorded with a method of at least one of X-ray computer tomography and magnetic resonance tomography.

3. (Previously Presented) The method as claimed in claim 1, wherein the 3D image data of the body region are recorded by use of a 3D ultrasonic method.

4. (Cancelled)

5. (Cancelled)

6. (Previously Presented) The method as claimed in claim 1, wherein the correlation with the correct position and dimension is effected automatically in a first stage during the performance of the catheter application by way of at least one of distinct anatomical points and artificial markers and is refined by the surface matching in a later second stage, in which the 3D surface profile from the 3D image data is at least approximately matched to a 3D surface profile from the 3D mapping data.

7. (Cancelled)

8. (Previously Presented) The method as claimed in claim 1, wherein the correlation in the correct position and dimension is made automatically using artificial markers which are attached to the patient's thorax before the 3D image data are recorded, and are identifiable both in the 3D image data and in the 3D mapping data.

9. (Previously Presented) The method as claimed in claim 1, wherein the correlation in the correct position and dimension is made automatically using distinctive anatomical points which can be identified both in the 3D image data and in the 3D mapping data.

10. (Previously Presented) The method as claimed in claim 1, wherein the selected 3D image data are visualized via a volume rendering technique.

11. (Previously Presented) The method as claimed in claim 10, wherein the selected 3D image data are visualized using an adjustable volume rendering transfer function.

12. (Previously Presented) The method as claimed in claim 1, wherein the selected 3D image data are visualized as polygonal grid.

13. (Previously Presented) The method as claimed in claim 1, wherein the two visualizations are linked to one another such that when a user rotates, moves or scales one of the visualizations the other visualization is simultaneously subjected to the same rotation, movement or scaling.

14. (Previously Presented) The method as claimed in claim 1, wherein registration between the 3D image data and the 3D mapping data prompts a representation, contained in the 3D mapping data, of at least some of the catheter to be shown in the visualization of the selected 3D image data in real time.

15. (Previously Presented) A device comprising:

at least one input interface for electroanatomical 3D mapping data and 3D image data, the 3D image data being high resolution image data;

an extraction module, designed to extract at least significant portions of an area to be treated by segmenting the 3D image data to obtain a 3D surface profile of objects in the area which is to be treated to provide selected 3D image data;

a registration module, connected to the extraction module, designed for automatic correlation of the electroanatomical 3D mapping data and the selected 3D image data in the correct position and dimension by surface matching the 3D surface profile from the 3D image data to a 3D surface profile from the 3D mapping data; and

a visualization module, connected to the registration module, to provide the 3D mapping data and the selected 3D image data for visualization in the correct position and dimension, next to one another, using at least one display unit.

16. (Cancelled)

17. (Previously Presented) The device as claimed in claim 15, wherein the registration module is designed for the automatic correlation in the correct position and dimension using artificial markers, identifiable both in the 3D image data and in the 3D mapping data.

18. (Previously Presented) The device as claimed in claim 15, wherein the registration module is designed for the automatic correlation in the correct position and dimension using distinctive anatomical points which are identifiable both in the 3D image data and in the 3D mapping data.

19. (Cancelled)

20. (Cancelled)

21. (Previously Presented) The device as claimed in claim 15, wherein the registration module is designed for automatic correlation in the correct position

with the correct dimension in a multi-stage process, wherein the correlation in the correct position and the correct dimension is effected by way of at least one of distinct anatomatical points and artificial markers in a first stage and is refined by surface matching of the 3D surfaced profile from the 3D image data to a 3D surface profile from the 3D mapping data in a later, second stage.

22. (Previously Presented) The device as claimed in claim 15, wherein the visualization module is designed for visualizing a part of a catheter used within the representation of the selected 3D image data in real time.

23. (Previously Presented) The device as claimed in claim 15, wherein the visualization module is designed so that when a user rotates, moves or scales one of the visualizations the other visualization is simultaneously subjected to the same rotation, movement or scaling.

24. – 29. (Cancelled)

*** END OF CLAIM LISTING ***